

A DESCRIPTIVE STUDY TO ASSESS THE KNOWLEDGE, ATTITUDE AND UTILIZATION OF HUMAN PAPILLOMA VIRUS[HPV]VACCINE AMONG MOTHERS OF ADOLESCENT GIRLS IN A SELECTED COMMUNITY AREA, BANGALORE

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Article Info: Received: 06 July 2026, Revised: 26 August 2026, Accepted: 16 September 2026

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DOI: <https://doi.org/10.5281/zenodo.22962562>



Citation:

Ms. Annamma Varghese, Ms. Christina Mathew, Ms. Diyona Verghese, Ms. Josna Mathew, Ms. Linu Mathew, Ms. Mariya Reji, *Mrs. Gowri R.v. (2026). A Descriptive Study To Assess The Knowledge, Attitude And Utilization Of Human Papilloma Virus[Hpv]Vaccine Among Mothers Of Adolescent Girls In A Selected Community Area, Bangalore. International Journal of Clinical and Pharmaceutical Innovations, 1(6), 294-301.

ABSTRACT

Background of the study: Human Papilloma virus (HPV) is a leading cause of cervical and other cancers, with high-risk strains being responsible for the majority of cases. The HPV vaccine is an effective preventive measure, primarily recommended for adolescent girls (9-16 years) before they become sexually active. Despite its proven effectiveness, the knowledge, attitude and utilization of the vaccine vary significantly across different populations. Mothers play a key role in the decision to vaccinate their daughters, influencing the uptake of the HPV vaccine. Factors such as knowledge of the vaccine, cultural beliefs, safety concerns, and healthcare provider recommendations affect this decision. This descriptive study aims to explore the knowledge, attitude and utilization of the HPV vaccine among mothers of adolescent girls. Understanding these factors will help identify barriers to vaccine uptake and guide interventions to improve vaccination rates and reduce the burden of HPV-related cancers.

KEYWORDS: Mother, Attitude, Knowledge, Human papilloma Vaccine, Utilization.

Objectives of the study

- ❖ To assess the level of knowledge about HPV vaccine among mothers of adolescent girls.
- ❖ To assess attitude of mothers of Adolescent Girls towards HPV vaccine
- ❖ To determine the utilization rate of the HPV vaccine among adolescent girls.
- ❖ To check correlation between level of knowledge and attitude.

INTRODUCTION

Human Papilloma virus (HPV) is one of the most common sexually transmitted infections worldwide, with certain high-risk strains being directly linked to several

types of cancers, including cervical, anal, and oropharyngeal cancers.^[1] The HPV vaccine, which offers protection against the most common cancer-causing strains (types 16 and 18), has proven to be highly effective in preventing HPV infection and reducing the incidence of HPV-related cancers.^[2] Its administration, ideally before the Onset of sexual activity is most effective during adolescence, particularly for girls aged 9–16 years.^[3]

Despite the availability of the HPV vaccine, global uptake remains suboptimal. Knowledge, attitude, and utilization of the vaccine vary significantly across different regions and communities.^[4]

Mothers play a critical role in deciding whether to vaccinate their daughters, with factors such as knowledge, cultural beliefs, concerns about vaccine safety, and recommendations from healthcare providers influencing their decisions.^[5]

In many parts of the world, particularly in developing countries, there is a lack of comprehensive understanding about the importance of the HPV vaccine and its role in preventing cancers.^[6]

Misconceptions about vaccine safety, lack of proper communication, and socio-cultural factors contribute to low vaccination rates, leaving adolescent girls vulnerable to HPV-related diseases.^[7]

This study seeks to explore the knowledge, attitude, and utilization of the HPV vaccine among mothers of adolescent girls (9–16 years). By assessing these factors, the study aims to identify barriers to vaccination and provide valuable insights that can help design more effective public health interventions, improve vaccination rates, and ultimately reduce the burden of HPV-related cancers.

Need for the study

Cervical cancer is one of the most preventable cancers, and vaccination against Human Papilloma Virus (HPV) plays a major role in reducing its incidence and overall disease burden. Globally, cervical cancer is the fourth most common cancer among women, with an estimated 604,000 new cases and 342,000 deaths in 2020. In India,

cervical cancer remains a significant public health concern, accounting for approximately 123,000 new cases and 77,000 deaths annually, making it the second most common cancer among women. In the Karnataka region, particularly urban areas like Bangalore, the incidence continues to rise, with several hundred new cases reported each year, highlighting the urgent need for preventive interventions.^[8]

METHODS

A non-experimental research design was used for this study. The sample consisted of 60 mothers of adolescent girls residing in Kothnur Dinne premises, Bangalore. Participants were selected using a purposive sampling method. A structured questionnaire was employed to assess knowledge and utilization, and a Likert scale was used to evaluate attitudes regarding the HPV vaccine.

RESULTS

The relationship between participants' knowledge and their attitude toward HPV and the HPV vaccine was analyzed using the Pearson correlation coefficient. The analysis revealed a very strong positive correlation ($r = 0.966$, $p < 0.001$), indicating that higher levels of knowledge are associated with more favorable attitudes toward vaccination among the participants. Additionally, the relationship between participants' knowledge and their utilization of the HPV vaccine was analyzed, showing a weak positive correlation ($r = 0.254$, $p < 0.001$), suggesting that greater knowledge is slightly associated with increased vaccine uptake, and this relationship is statistically significant.

SECTION I

DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Table 1: Frequency and percentage distribution of respondents by age in years N=60

Sl.no	Age in years	Frequency	Percentage
1	20-25	3	5%
2	26-30	4	6.6%
3	31-35	15	25%
4	36-40	35	58.3%
5	Above 40	3	5%
	Total	60	100%

Table 1 reveals the frequency and percentage distribution of respondents according to age. Majority of respondents 35(58.3%) were from 36-40 years age group, 15(25%)

belonged to 31-35 years of age, 4(6.6%) were from 26-30 years age group and 3(5%) each from 20-25 and above 40 years of age category.

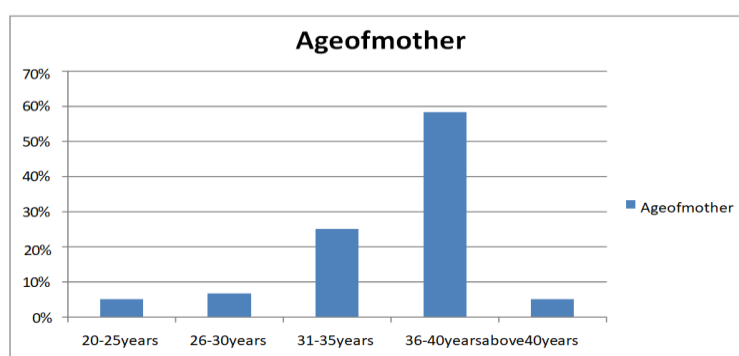


Figure 1: Bar graph showing the frequency and percentage distribution of respondents according to age.

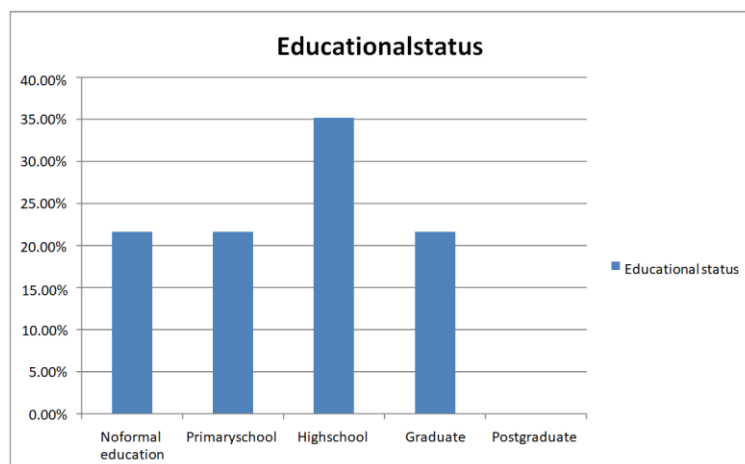
Table 2: Frequency and percentage distribution of respondents by education.

N=60

Sno	Educationalstatus	Frequency	Percentage
1	No formaleducation	13	21.6%
2	Primaryschool	13	21.6%
3	Highschool	21	35.2%
4	Graduate	13	21.6%
5	Post graduate	0	0%
	Total	60	100%

Table 2 reveals distribution of respondents by education. Majority 21(35.2%) of women had high school education

followed by no formal education, primary school education. And graduates with 13 (21.6%).

**Figure 2: Bargraph showing frequency and p e r c e n t a g e distribution of respondents by education.****Table 3: Frequency and percentage distribution of respondents by occupation.**

N=60

Sl no	Occupation	Frequency	Percentage
1	Business	0	0%
2	Government job	3	5%
3	Private job	10	16.8%
4	Home maker	28	46.6%
5	Other	19	31.6%
	total	60	100%

Table 3 reveals the frequency and percentage distribution of respondents by occupation. Majority 28(46.6%) of women were homemakers, 19(31.6%) were other job

seekers, 10(16.8%) having private job and only 3 (5%) women had government job.

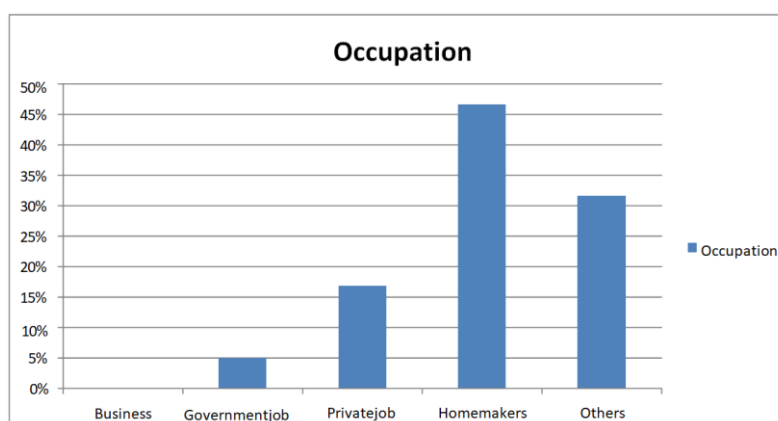
**Figure 3: Bar graph showing frequency and percentage distribution of respondents by occupation.**

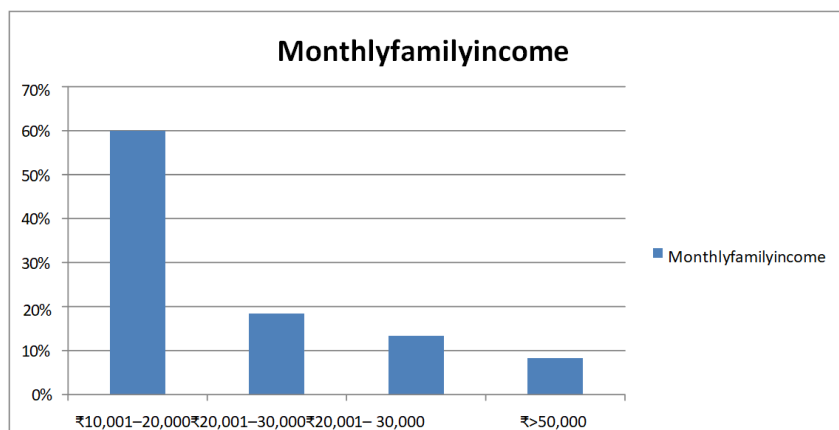
Table 4: Frequency and percentage distribution of respondents according to monthly family income.

N=60

Sno	Monthly family income In Rs	Frequency	Percentage
1	₹10,001–20,000	36	60%
2	₹20,001–30,000	11	18.34%
3	₹30,001–50,000	8	13.33%
4	₹>50,000	5	8.33%
	Total	60	100%

Table 4 reveals the frequency and percentage distribution of respondents by monthly family income. Majority of women 36(60%) belonged to income group of 10,001-

20,000, followed by 11(18.34%) with income of 20,001-30,000, 8(13.33%) with income of 30,001-50,000 and 5(8.33%) with income of >50,000.

**Figure 4: Bar graph showing frequency and percentage distribution of respondents according to monthly family income.**

SECTION II

DISTRIBUTION OF RESPONDENTS ACCORDING TO KNOWLEDGE REGARDING HPV VACCINE

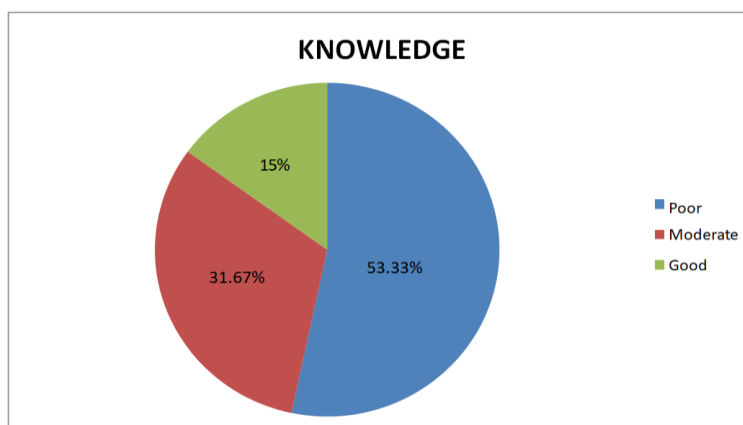
Table 5: Frequency and percentage distribution of respondents by knowledge on HPV vaccine.

N=60

Sl no	Scoring	Frequency	Percentage
1	Poor	32	53.33%
2	Moderate	19	31.67%
3	Good	9	15%
	Total	60	100%

Table 5 reveals frequency and percentage distribution of respondent by knowledge about HPV vaccine. Majority of women 32 (53.33%) had poor knowledge regarding HPV

vaccine. 9(15%) women had good knowledge about HPV vaccine.

**Figure 5: Pie chart showing frequency and percentage distribution of respondents by knowledge HPV vaccine.**

SECTIONIII

DISTRIBUTION OF RESPONDENTS ACCORDING TO ATTITUDE TOWARDS HPV VACCINE

Table 6: Frequency and percentage distribution of respondents by attitude score.

N=60

Sl. no	Attitude	Frequency	Percentage
1	Favorable	32	53.33%
2	Unfavorable	28	46.67%
	Total	60	100%

Mean score of the respondents on attitude scale was 32.22%. 32(53.33%) of women had score above mean score hence had positive attitude regarding HPV vaccine

while 28(46.67%) had negative attitude as their scores were below mean score of respondents.

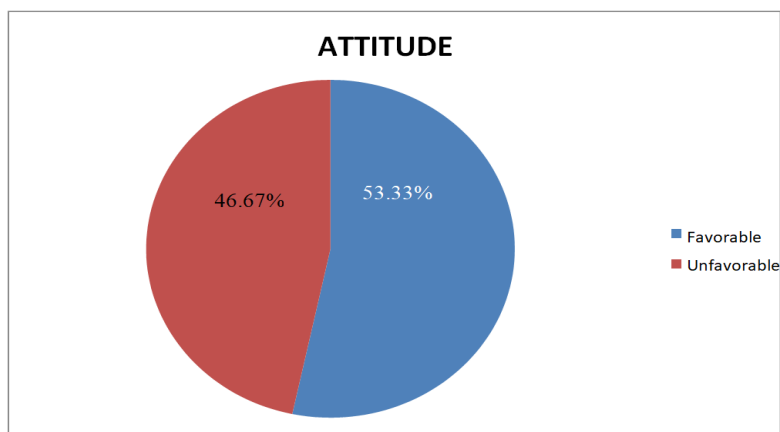


Figure 6: Pie chart showing frequency and percentage distribution of respondents by attitude score.

SECTION1V

Association between knowledge and selected socio demographic variables of respondents

Table 7: shows association between knowledge and demographic variables.

Sl No	Variables	Score below average	Score above average	df	Calculate d value χ^2	Table Value of χ^2	Inference
1	Age in years			3	1.76	7.815	NS
	20-25	0	0				
	26-30	1	1				
	31-35	7	8				
	36-40	23	14				
	Above40	1	2				
2	Education			4	0.98	9.488	NS
	No formal education	8	5				
	Primary school	10	3				
	High school	13	8				
	Graduate	9	4				
	Post graduate	0	0				
3	Occupation			2	3.6	5.991	NS
	Business	0	0				
	Government job	0	0				
	Private job	5	4				
	Homemaker	14	14				
	Other	16	5				
4	Income			3	7.27	7.815	NS
	₹10,001-20,000	13	23				
	₹20,001-30,000	9	2				
	₹30,001-50,000	4	4				
	₹>50,000	2	3				

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SECTIONV**Associationbetweenattitudeandselectedsociodemographicvariables ofrespondent****Table 8: Association between attitude and demo graphic variables.**

SL No	Variables	Score below average	Score above average	df	Calculated value χ^2	Table value of χ^2	Inference
1	Age in years			4	0.76	9.488	NS
	20-25	2	1				
	26-30	1	1				
	31-35	7	8				
	36-40	18	19				
	Above40	2	1				
2	Education			3	2.91	7.815	NS
	No formal education	9	4				
	Primary school	10	3				
	High school	13	8				
	Graduate	6	7				
	Postgraduate	0	0				
3	Occupation			2	0.088	5.991	NS
	Business	0	0				
	Government job	0	0				
	Private job	4	5				
	Homemaker	14	14				
	Other	10	11				
4	Income			3	0.48	7.815	NS
	₹10,001-20,000	16	20				
	₹20,001-30,000	6	5				
	₹30,001-50,000	4	4				
	₹>50,000	2	3				

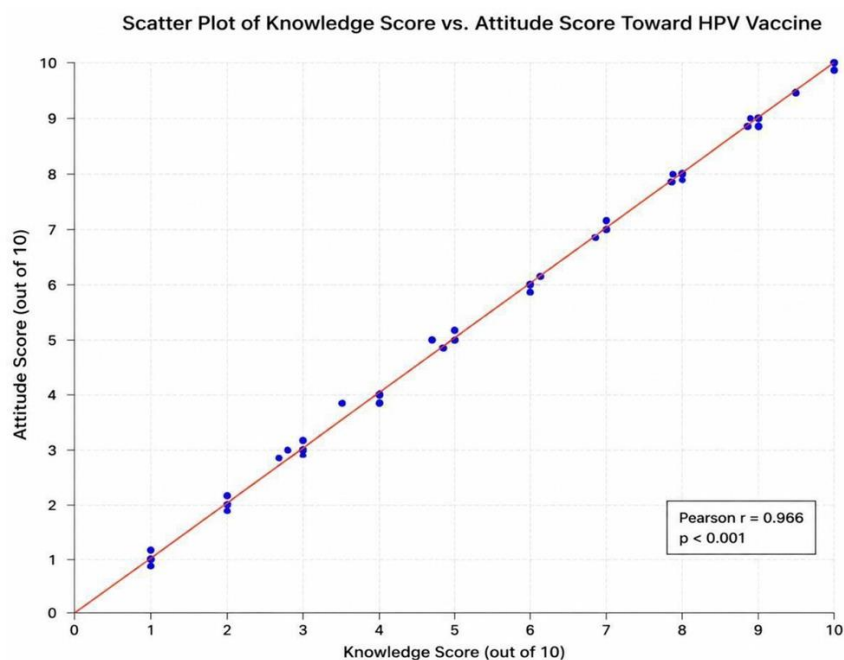
SECTIONVI**RELATIONBETWEENKNOWLEDGEANDATTITUDEOFRESPONDENTSREGARDING HPV VACCINE****Table 9: Relationship between knowledge and attitude of respondents regarding HPV vaccine.**

Aspects	Mean	SD	Correlation co efficient(r)
Knowledge	3.35	1.22	+0.47
attitude	32.0	9.07	

The above table represents the correlation coefficient between level of knowledge and attitude of respondents. The obtained correlation coefficient value is +0.47. This value indicates that there is a moderate positive correlation between knowledge and attitude of respondents regarding HPV vaccine. This implies that as participants' knowledge increases, their attitude towards the subject also tends to improve, high lighting the importance of knowledge enhancement in shaping favorable attitudes.

SECTIONVII**CORRELATIONBETWEENKNOWLEDGEANDATTITUDEREGARDINGHPVVACCINE**

The relationship between participants' knowledge and their attitude toward HPV vaccine was analyzed using the Pearson correlation coefficient. The analysis revealed a very strong positive correlation ($r = 0.966$, $p < 0.001$), indicating that higher level of knowledge are associated with more favorable attitudes toward vaccination among the participants.



SECTION VIII CORRELATION BETWEEN KNOWLEDGE AND UTILIZATION REGARDING HPV VACCINE

The relationship between participants' knowledge and their utilization of the HPV vaccine was analyzed using the Pearson correlation coefficient. The analysis revealed

a weak positive correlation ($r = 0.254$, $p < 0.001$), indicating that higher levels of knowledge about HPV are slightly associated with increased utilization of the vaccine among the participants, and this relationship is statistically significant.

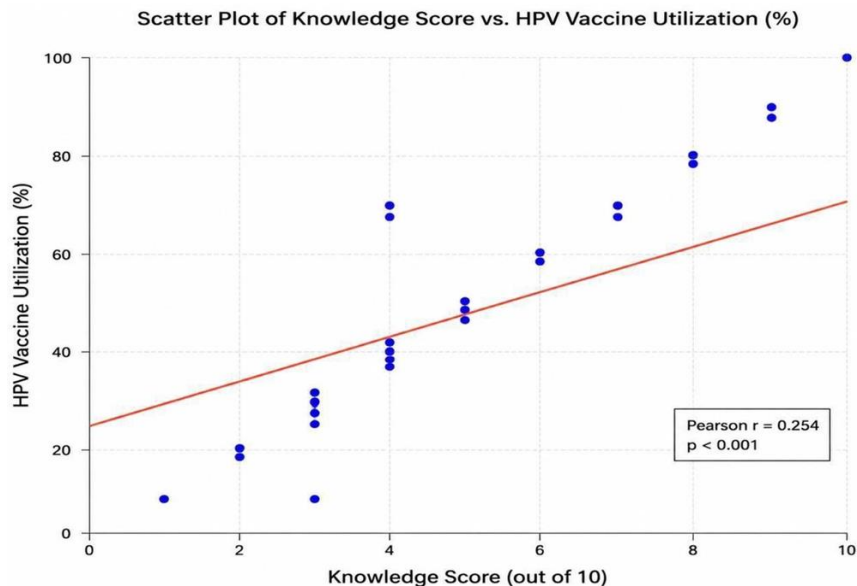


Fig 8: Scatter plot showing correlation between knowledge and utilization of HPV vaccine.

Interpretation

The study found that mothers of adolescents have limited knowledge about the HPV vaccine (mean 36.66%), yet their attitude is relatively positive (mean 60.66%) and utilization is moderate (mean 42.34%). The strong positive correlation between knowledge and attitude suggests that improving knowledge could further enhance positive views, while the weak positive

correlation with utilization indicates that higher knowledge may slightly increase vaccine uptake.

CONCLUSION

Mothers of adolescents have limited knowledge about the HPV vaccine, but generally hold positive attitudes, and a moderate proportion have utilized the vaccine. Enhancing mothers' knowledge is likely to strengthen

their positive attitudes and may slightly improve vaccine uptake, highlighting the importance of targeted educational interventions to increase HPV vaccination coverage.

REFERENCE

1. World Health Organization. Human papillomavirus (HPV) and cervical cancer. Geneva: WHO; 2023. Available from: [https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-\(hpv\)-and-cervical-cancer](https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer)
2. Centers for Disease Control and Prevention. HPV Vaccine Recommendations. Atlanta: CDC; 2023. Available from: <https://www.cdc.gov/vaccines/vpd/hpv/hcp/recommendations.html>
3. Garland SM, Hernandez-Avila M, Wheeler CM, Perez G, Harper DM, Leodolter S, et al. Quadrivalent vaccine against human papillomavirus to prevent anogenital diseases. *N Engl J Med.*, 2007; 356(19): 1928–43.
4. Bruni L, Saura-Lázaro A, Montoliu A, Brotons M, Alemany L, Diallo MS, et al. HPV vaccination introduction worldwide and WHO recommendations: impact on cervical cancer prevention. *Vaccine*, 2022; 40(Suppl 1): A31–A39.
5. Holman DM, Benard V, Roland KB, Watson M, Liddon N, Stokley S. Barriers to human papillomavirus vaccination among US adolescents: a systematic review of the literature. *JAMA Pediatr.*, 2014; 168(1): 76–82.
6. Perkins RB, Clark JA. What affects human papilloma virus vaccine uptake in teenage girls? A review of the literature. *J Pediatr Adolesc Gynecol*, 2012; 25(2): 100–8.
7. LaMontagne DS, Barge S, Le NT, Mugisha E, Penny ME, Gandhi S, et al. Human papillomavirus vaccine delivery strategies that achieved high coverage in low- and middle-income countries. *Bull World Health Organ*, 2011; 89(11): 821–30B.
8. Wamai RG, Meskele M, Hussein S, Shibeshi ME, Mwanahamuntu MH. Human papillomavirus (HPV) vaccination in developing countries: challenges, opportunities and strategies. *Glob Health Action*, 2013; 6: 1–12.
9. Arbyn M, Weiderpass E, Bruni L, de Sanjose S, Saraiya M, Ferlay J, et al. Estimates of incidence and mortality of cervical cancer in 2020: a worldwide analysis. *Lancet Glob Health*, 2021; 9(8): e1017–e1028.
10. Elam-Evans LD, Yankey D, Singleton JA, Sterrett N, Markowitz LE, Williams CL, et al. National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13–17 Years.
11. —United States, 2019. *MMWR Morbidity and Mortality Weekly Report*, 2020 Aug 21; 69(33): 1109–16.
12. Vaccination coverage in adolescents | NCIRS [Internet]. [Ncirs.org.au](https://ncirs.org.au). 2025. Available from: <https://ncirs.org.au/annual-immunisation-coverage-report-2023-summary/vaccination-coverage-adolescents>
13. UK. Human papillomavirus (HPV) vaccination coverage in adolescents in England: 2024 to 2025 [Internet]. GOV. UK. 2026. Available from: <https://www.gov.uk/government/statistics/human-papillomavirus-hpv-vaccine-coverage-in-england-2024-to-2025/human-papillomavirus-hpv-vaccination-coverage-in-adolescents-in-england-2024-to-2025>
14. Health Service Executive, National Immunization Office. Quasi-experimental school-based evaluation of HPV vaccination knowledge and uptake among parents and adolescents in disadvantaged and non-disadvantaged schools, Ireland, 2022–2025. Dublin: HSE; 2025.
15. Government of Gujarat, Health Department. HPV vaccination awareness and uptake among school-going adolescents: longitudinal programme-based evaluation, Gujarat, 2021–2024. *GujHealthRep*. 2024 [cited 2026 May 21]. Available from: <https://www.gujhealth.gov.in>
16. KIMS Healthcare Group. HPV vaccination awareness and barriers among parents of adolescent girls: retrospective hospital-based study, Kerala, 2024–2025. *KIMS Health Rep*. 2025 [cited 2026 May 21]. Available from: <https://www.kimshealthcare.com>
17. Swaleha Furqan, Mondal A, Singh N, Singh M, Kapoor R. Knowledge and Awareness of Human Papilloma virus Vaccination in an Urbanized Village in Delhi. *Cureus*. 2025 May 20.
18. Pandey D, Vanya V, Bhagat S, VSB, Shetty J. Awareness and Attitude towards Human Papilloma virus (HPV) Vaccine among Medical Students in a Premier Medical School in India. *Wu JT*, editor. *PLoS ONE.*, 2012 Jul 31; 7(7): e40619.
19. Jerald G, Solomon SG. Impact of health education on cervical cancer and HPV vaccine knowledge in adolescent girls in selected schools in Karnataka-mixed-method [Internet]. 2025. Available from: https://www.researchgate.net/publication/395709048_Impact_of_health_education_on_cervical_cancer_and_HPV_vaccine_knowledge_in_adolescent_girls_in_selected_schools_in_Karnataka-mixed-method
20. Purushothaman S, Gowda V, Venkatakrishna S. Awareness on etiology and preventive measures of cancer cervix among female medical students in Rajarajeswari Medical College, Bengaluru. *International Journal Of Community Medicine And Public Health* [Internet]. 2026 May 30 [cited 2026 May 31]; 13(6): 2975–80. Available from: <https://www.ijcmph.com/index.php/ijcmph/article/view/15608>